Instructor	Zachary T. Ball zb1@rice.edu	BRC 327 office hours: Monday 1:30–3:00 P.M.
Course Assistant	Anita Walker aawalker@rice.edu	DBH 243

Topic Organic Chemistry II. A continuation of CHEM 211 and completing a full-year course in organic chemistry, primarily for students interested in the chemistry major or in chemical research.

Prerequisites CHEM 211 or a comparable one-semester course in organic chemistry.

Co-enrollment in CHEM 365 (Organic Chemistry Lab) is expected. See the instructor if you do not plan to enroll in Chem 365.

Course Meetings Tu/Th, 10:50–11:50 and Friday 1–1:50 in DBH 210. Topical readings from the textbook will be assigned in advance of course meetings, and it is expected that students will come to class having read assigned readings. Attendance is required and absences will affect the "participation" portion of a student's grade.

OWL-Space Selected course materials will be available online (canvas.rice.edu).

Course materials This course will continue with the book used in CHEM 211: *Organic Chemistry*, 6th Ed. by Marc Loudon & Jim Parise (ISBN 978-1936221349).

Access to a good modeling kit can be extremely helpful to your understanding of organic chemistry; they remain useful in an era of ubiquitous computational modeling. The model kits used in CHEM 211 will be sufficient. If you plan to study synthetic chemistry in the future, you should also consider a more useful model kit, such as the HGS "5030 Organic Chemistry Set." After some time being unavailable the kit appears to be available online again.

Requirements and Grades

problem sets (9)	20 %
exams (3)	40 %
final exam	25 %
participation, reading quizzes	15 %
TOTAL	100%

Exams and Quizzes There will be three midterm exams, held during normal class meetings, and a final exam. All exams will be open notes. You may bring whatever paper resources (books, notes, old homework, etc.) you wish, but no electronic aids (phone, computer, etc.) may be used. The final exam will be scheduled by the registrar. Brief reading quizzes (closed book) will be administered at the start of some lecture periods. A plastic molecular model kit is also permitted in all quizzes and exams.

Special scheduling for final exam: The final exam in this course will be given in the time slot assigned to CHEM 212. The registrar has occasionally mis-scheduled this final. In the event that scheduled times for CHEM 212 and CHEM 320 differ, the assigned time for CHEM 212 will be correct.

Exam regrades

You have one week from the time that an exam is handed back to request a regrade for an incorrectly graded exam. If you feel there has been an error in grading you should explain your request on a separate piece of paper and staple this to your original and unaltered exam and submit them to the course instructor. *Only exams written in non-erasable ink may be submitted for regrade. Exams with any markings, erasures, or other alterations of any kind added after initial grading may not be submitted for a regrade.*

Problem Sets

Problem sets will not be rigorously graded for accuracy; credit is primarily based on completion and evidence of thorough effort. Keeping in mind that problem sets are an aid to your understanding of the material, you are welcome to work with classmates. I am aware that solutions to most problems are available through web resources; you will learn the most by avoiding this temptation and by working through problems yourself.

You may consult with other students, but the work you turn in should be your own.

Course Objectives

In this course, we will learn the reactions or organic chemistry, with special emphasis on carbonyl compounds, aromatic reactivity, and pericyclic reactions. We will develop the skills to postulate, analyze, and critique reasonable arrow-pushing mechanisms. The course will offer extensive exposure to multistep synthesis, and the application of fundamental kinetic and thermodynamic concepts to organic reactivity will be stressed.

Course Outcomes

Students completing the course should be able to

1) propose and defend complex arrow-pushing reaction mechanisms in organic chemistry
2) use retrosynthetic analysis to propose a multistep synthesis of target compounds with 1 or more functional groups from simple starting materials
3) explain reactivity patterns of carbonyl compounds on the basis of kinetic and/or thermodynamic arguments

Honor Code

The Rice University Honor Code applies to all work conducted in this class. Students may work collaboratively on homework assignments.

Disabilities

If you have a documented disability that will impact your work in this class, please contact the course instructor to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Allen Center.

Chem 320 **Spring 2020**

Tentative Schedule			Lecture Topic		week
Tue	Jan 14	class #1	introduction		1
Thu	Jan 16	class #2	Ch 15: resonance & aromat	**PS1 out**	
Fri	Jan 17	class #3			
Tue	Jan 21	class #4	Ch 16: EAS	**PS1 in; PS2 out**	2
Thu	Jan 23	class #5	Ch 17: allylic & benzylic		
Fri	Jan 24	class #6			
Tue	Jan 28	class #7		**PS2 in, PS3 out**	3
Thu	Jan 30	class #8	Ch 19: C=O addn		
Fri	Jan 31	class #9			
Tue	Feb 4	class #10			4
Thu	Jan 6	class #11		**PS3 in, Practice Exam out**	
Fri	Feb 7	class #12			
Tue	Feb 11	exam 1, in-class			5
	Feb 13–14	Spring Recess			
Tue	Feb 18	class #13	Ch 20: acids	**PS4 out**	6
Thu	Feb 20	class #14	Ch 21: acid derivatives		
Fri	Feb 21	class #15			
Tue	Feb 25	class #16		**PS4 in, PS5 out**	7
Thu	Feb 27	class #17	Ch 22: enolates		
Fri	Feb 28	class #18			
	Mar 3	class #19		**PS5 in, PS6 out**	8
Thu	Mar 5	class #20			
Fri	Mar 6	class #21			
Tue	Mar 10	class #22		**PS6 in, Practice Exam out**	9
Thu	Mar 12	exam 2, in-class			
Fri	Mar 13	class #23			
	Mar 16–20	Spring Break			
Tue	Mar 24	class #24	Ch 23: amines	**PS 7 out**	10
Thu	Mar 26	class #25			
Fri	Mar 27	class #26			
Tue	Mar 31	class #27		**PS7 in, PS8 out**	11
Thu	Apr 2	class #28			
Fri	Apr 3	class #29	Ch 28: pericyclic rxns		
Tue	Apr 7	class #30		**PS8 in, PS9 out**	12
Thu	Apr 9	class #31			
Fri	Apr 10	class #32	Ch 27: peptides		
Tue	Apr 14	class #33		**PS9 in, Practice Exam out**	13
Thu	Apr 16	exam 3, in-class			
Fri	Apr 17	class #34			
Tue	Apr 21	class #35	Ch 18: transition-metals		14
Thu	Apr 23	class #36		**Final Practice Out**	
Fri	Apr 24	class #37			
	Apr 29–May 6	Final Exams			